

What is claimed is:

1. An automatic changeover method of communication networks comprising:

5 (a) communicating with a second station by a first station through a first wireless communication network;

(b) measuring a first level fluctuation value more than once by said first station, wherein said
10 first level fluctuation value indicates a fluctuation degree of electric field intensity of an electromagnetic wave received from said first wireless communication network;

(c) calculating a first average level
15 fluctuation value by said first station, wherein said first average level fluctuation value is an average of a plurality of said first level fluctuation values; and

(d) changing over from said first wireless
20 communication network to a second wireless communication network by said first station, based on said first average level fluctuation value.

2. The method according to claim 1, wherein said
25 first wireless communication network is a network for a wireless LAN (Local Area Network), and said

second wireless communication network is a network for a PHS (personal Handyphone System).

3. The method according to claim 1, wherein said
5 step (d) comprising:

(d1) comparing said first average level fluctuation value with a first setting value by said first station; and

(d2) changing over from said first wireless
10 communication network to said second wireless communication network by said first station based on a first result of said comparison.

4. The method according to claim 3, wherein said
15 step (d2) comprising:

(d21) sending a first communication request signal to said second station by said first station through said second wireless communication network based on said first result of said
20 comparison, wherein said first communication request signal indicates a request for a changeover from said first wireless communication network to said second wireless communication network; and

(d22) ending a communication through said
25 first wireless communication network and starting a communication with said second station by said

first station through said second wireless communication network, when said first station receives a first communication answer signal from said second station through said second wireless communication network, wherein said first communication answer signal indicates an answer that said second station can communicate through said second wireless communication network.

5. The method according to claim 1, further comprising:

(e) measuring a second level fluctuation value more than once by said first station, wherein said second level fluctuation value indicates a fluctuation degree of electric field intensity of an electromagnetic wave received from said first wireless communication network during communicating with said second station through said second wireless communication network;

(f) calculating a second average level fluctuation value by said first station, wherein said second average level fluctuation value is an average of a plurality of said second level fluctuation values;

(g) sending a second communication request signal to said second station by said first station

through said first wireless communication network based on said second average level fluctuation value, wherein said second communication request signal indicates an request for the changeover from
5 said second wireless communication network to said first wireless communication network; and

(h) ending a communication through said second wireless communication network and starting a communication with said second station
10 by said first station through said first wireless communication network, when said first station receives a second communication answer signal from said second station through said first wireless communication network, wherein said second
15 communication answer signal indicates an answer that said second station can communicate through said first wireless communication network.

6. The method according to claim 1, wherein said
20 step (a) comprising:

(a1) measuring a third level fluctuation value more than once by said first station, wherein said third level fluctuation value indicates a fluctuation degree of electric field intensity of
25 an electromagnetic wave received from said first wireless communication network before

communicating with said second station;

(a2) calculating a third average level fluctuation value by said first station, wherein said third average level fluctuation value is an average of a plurality of said third level fluctuation values;

(a3) sending a first inquiry signal to said second station by said first station through said first wireless communication network based on said third average level fluctuation value, wherein said first inquiry signal indicates an inquiry whether or not said second station can communicate through said first wireless communication network; and

(a4) starting a communication with said second station by said first station through said first wireless communication network, when said first station receives a first answer signal from said second station through said first wireless communication network, wherein said first answer signal indicates an answer that said second station can communicate through said first wireless communication network.

7. The method according to claim 2, wherein said step (d) comprising:

(d3) comparing said first average level fluctuation value with a first setting value by said first station; and

(d4) changing over from said first wireless
5 communication network to said second wireless communication network by said first station based on a first result of said comparison.

8. The method according to claim 7, wherein said
10 step (d4) comprising:

(d41) sending a first communication request signal to said second station by said first station through said second wireless communication network based on said first result of said
15 comparison, wherein said first communication request signal indicates a request for a changeover from said first wireless communication network to said second wireless communication network; and

(d42) ending a communication through said
20 first wireless communication network and starting a communication with said second station by said first station through said second wireless communication network, when said first station receives a first communication answer signal from
25 said second station through said second wireless communication network, wherein said first

communication answer signal indicates an answer that said second station can communicate through said second wireless communication network.

5 9. The method according to claim 2, further comprising:

(i) measuring a second level fluctuation value more than once by said first station, wherein said second level fluctuation value indicates a
10 fluctuation degree of electric field intensity of an electromagnetic wave received from said first wireless communication network during communicating with said second station through said second wireless communication network;

15 (j) calculating a second average level fluctuation value by said first station, wherein said second average level fluctuation value is an average of a plurality of said second level fluctuation values;

20 (k) sending a second communication request signal to said second station by said first station through said first wireless communication network based on said second average level fluctuation value, wherein said second communication request
25 signal indicates an request for the changeover from said second wireless communication network to said

first wireless communication network; and

(1) ending a communication through said second wireless communication network and starting a communication with said second station by said first station through said first wireless communication network, when said first station receives a second communication answer signal from said second station through said first wireless communication network, wherein said second communication answer signal indicates an answer that said second station can communicate through said first wireless communication network.

10. The method according to claim 2, wherein said step (a) comprising:

(a5) measuring a third level fluctuation value more than once by said first station, wherein said third level fluctuation value indicates a fluctuation degree of electric field intensity of an electromagnetic wave received from said first wireless communication network before communicating with said second station;

(a6) calculating a third average level fluctuation value by said first station, wherein said third average level fluctuation value is an average of a plurality of said third level

fluctuation values;

(a7) sending a first inquiry signal to said second station by said first station through said first wireless communication network based on said
5 third average level fluctuation value, wherein said first inquiry signal indicates an inquiry whether or not said second station can communicate through said first wireless communication network; and

10 (a8) starting a communication with said second station by said first station through said first wireless communication network, when said first station receives a first answer signal from said second station through said first wireless
15 communication network, wherein said first answer signal indicates an answer that said second station can communicate through said first wireless communication network.

20 11. An automatic changeover method of communication networks comprising:

(m) measuring a first level fluctuation value more than once by a first station, wherein said first level fluctuation value indicates a
25 fluctuation degree of electric field intensity of an electromagnetic wave received from a first

wireless communication network;

(n) calculating a first average level fluctuation value by said first station, wherein said first average level fluctuation value is an average of a plurality of said first level fluctuation values;

(o) sending a first inquiry signal to a second station by said first station through said first wireless communication network based on said first average level fluctuation value, wherein said first inquiry signal indicates an inquiry whether or not said second station can communicate through said first wireless communication network;

(p) communicating with said second station by said first station through said first wireless communication network, when said first station receives a first answer signal from said second station through said first wireless communication network, wherein said first answer signal indicates an answer that said second station can communicate through said first wireless communication network; and

(q) communicating with said second station by said first station through a second wireless communication network, when said first station receives a second answer signal from said second

station through said first wireless communication network, wherein said second answer signal indicates an answer that said second station cannot communicate through said first wireless communication network, or when said first station
5 does not receives any answer signal within a certain time period.

12. The method according to claim 11, wherein said
10 first wireless communication network is a network for a wireless LAN (Local Area Network), and said second wireless communication network is a network for a PHS (personal Handyphone System).

15 13. The method according to claim 12, wherein said step (g) comprising:

(o1) comparing said first average level fluctuation value with a first setting value by said first station; and

20 (o2) sending a first inquiry signal to a second station by said first station through said first wireless communication network based on a result of said comparison.

25 14. A computer program product embodied on a computer-readable medium and comprising code that,

when executed, causes a computer of a first station to perform the following:

(a) communicating with a second station through a first wireless communication network;

5 (b) measuring a first level fluctuation value more than once, wherein said first level fluctuation value indicates a fluctuation degree of electric field intensity of an electromagnetic wave received from said first wireless
10 communication network;

(c) calculating a first average level fluctuation value, wherein said first average level fluctuation value is an average of a plurality of said first level fluctuation values;
15 and

(d) changing over from said first wireless communication network to a second wireless communication network, based on said first average level fluctuation value.

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15. The computer program product according to claim 14, wherein said first wireless communication network is a network for a wireless LAN (Local Area Network), and said second wireless
25 communication network is a network for a PHS (personal Handyphone System).

16. The computer program product according to claim 14, wherein said step (d) comprising:

(d1) comparing said first average level
5 fluctuation value with a first setting value; and

(d2) changing over from said first wireless communication network to said second wireless communication network based on a first result of said comparison.

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17. The computer program product according to claim 16, wherein said step (d2) comprising:

(d21) sending a first communication request signal to said second station through said second
15 wireless communication network based on said first result of said comparison, wherein said first communication request signal indicates a request for a changeover from said first wireless communication network to said second wireless
20 communication network; and

(d22) ending a communication through said first wireless communication network and starting a communication with said second station through said second wireless communication network, when
25 said first station receives a first communication answer signal from said second station through said

second wireless communication network, wherein
said first communication answer signal indicates
an answer that said second station can communicate
through said second wireless communication
5 network.

18. The computer program product according to
claim 14, further comprising:

(e) measuring a second level fluctuation
10 value more than once, wherein said second level
fluctuation value indicates a fluctuation degree
of electric field intensity of an electromagnetic
wave received from said first wireless
communication network during communicating with
15 said second station through said second wireless
communication network;

(f) calculating a second average level
fluctuation value, wherein said second average
level fluctuation value is an average of a
20 plurality of said second level fluctuation values;

(g) sending a second communication request
signal to said second station through said first
wireless communication network based on said
second average level fluctuation value, wherein
25 said second communication request signal
indicates an request for the changeover from said

second wireless communication network to said first wireless communication network; and

(h) ending a communication through said second wireless communication network and starting a communication with said second station through said first wireless communication network, when said first station receives a second communication answer signal from said second station through said first wireless communication network, wherein said second communication answer signal indicates an answer that said second station can communicate through said first wireless communication network.

19. The computer program product according to claim 14, wherein said step (a) comprising:

(a1) measuring a third level fluctuation value more than once, wherein said third level fluctuation value indicates a fluctuation degree of electric field intensity of an electromagnetic wave received from said first wireless communication network before communicating with said second station;

(a2) calculating a third average level fluctuation value, wherein said third average level fluctuation value is an average of a

plurality of said third level fluctuation values;

(a3) sending a first inquiry signal to said second station through said first wireless communication network based on said third average level fluctuation value, wherein said first inquiry signal indicates an inquiry whether or not said second station can communicate through said first wireless communication network; and

(a4) starting a communication with said second station through said first wireless communication network, when said first station receives a first answer signal from said second station through said first wireless communication network, wherein said first answer signal indicates an answer that said second station can communicate through said first wireless communication network.

20. The computer program product according to claim 15, wherein said step (d) comprising:

(d3) comparing said first average level fluctuation value with a first setting value; and

(d4) changing over from said first wireless communication network to said second wireless communication network based on a first result of said comparison.

21. The computer program product according to claim 20, wherein said step (d4) comprising:

(d41) sending a first communication request
5 signal to said second station through said second wireless communication network based on said first result of said comparison, wherein said first communication request signal indicates a request for a changeover from said first wireless
10 communication network to said second wireless communication network; and

(d42) ending a communication through said first wireless communication network and starting a communication with said second station through
15 said second wireless communication network, when said first station receives a first communication answer signal from said second station through said second wireless communication network, wherein said first communication answer signal indicates
20 an answer that said second station can communicate through said second wireless communication network.

22. The computer program product according to
25 claim 15, further comprising:

(i) measuring a second level fluctuation

value more than once, wherein said second level fluctuation value indicates a fluctuation degree of electric field intensity of an electromagnetic wave received from said first wireless communication network during communicating with said second station through said second wireless communication network;

(j) calculating a second average level fluctuation value, wherein said second average level fluctuation value is an average of a plurality of said second level fluctuation values;

(k) sending a second communication request signal to said second station through said first wireless communication network based on said second average level fluctuation value, wherein said second communication request signal indicates an request for the changeover from said second wireless communication network to said first wireless communication network; and

(l) ending a communication through said second wireless communication network and starting a communication with said second station through said first wireless communication network, when said first station receives a second communication answer signal from said second station through said first wireless communication

network, wherein said second communication answer signal indicates an answer that said second station can communicate through said first wireless communication network.

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23. The computer program product according to claim 15, wherein said step (a) comprising:

(a5) measuring a third level fluctuation value more than once, wherein said third level fluctuation value indicates a fluctuation degree of electric field intensity of an electromagnetic wave received from said first wireless communication network before communicating with said second station;

15 (a6) calculating a third average level fluctuation value, wherein said third average level fluctuation value is an average of a plurality of said third level fluctuation values;

(a7) sending a first inquiry signal to said second station through said first wireless communication network based on said third average level fluctuation value, wherein said first inquiry signal indicates an inquiry whether or not said second station can communicate through said first wireless communication network; and

25 (a8) starting a communication with said

second station through said first wireless communication network, when said first station receives a first answer signal from said second station through said first wireless communication network, wherein said first answer signal indicates an answer that said second station can communicate through said first wireless communication network.

10 24. A computer program product embodied on a computer-readable medium and comprising code that, when executed, causes a computer of a first station to perform the following:

(m) measuring a first level fluctuation value more than once, wherein said first level fluctuation value indicates a fluctuation degree of electric field intensity of an electromagnetic wave received from a first wireless communication network;

20 (n) calculating a first average level fluctuation value, wherein said first average level fluctuation value is an average of a plurality of said first level fluctuation values;

(o) sending a first inquiry signal to a second station through said first wireless communication network based on said first average level

fluctuation value, wherein said first inquiry signal indicates an inquiry whether or not said second station can communicate through said first wireless communication network;

5 (p) communicating with said second station through said first wireless communication network, when said first station receives a first answer signal from said second station through said first wireless communication network, wherein said
10 first answer signal indicates an answer that said second station can communicate through said first wireless communication network; and

 (q) communicating with said second station through a second wireless communication network,
15 when said first station receives a second answer signal from said second station through said first wireless communication network, wherein said second answer signal indicates an answer that said second station cannot communicate through said
20 first wireless communication network, or when said first station does not receives any answer signal within a certain time period.

25. The computer program product according to
25 claim 24, wherein said first wireless communication network is a network for a wireless

LAN (Local Area Network), and said second wireless communication network is a network for a PHS (personal Handyphone System).

5 26. The computer program product according to claim 25, wherein said step (g) comprising:

(o1) comparing said first average level fluctuation value with a first setting value; and

(o2) sending a first inquiry signal to a
10 second station through said first wireless communication network based on a result of said comparison.

27. An automatic changeover system for
15 communication networks comprising:

a first station; and

a second station;

wherein said first station communicates with said second station through a first wireless
20 communication network, measures a first level fluctuation value more than once, calculates a first average level fluctuation value, and changes over from said first wireless communication network to a second wireless communication network
25 based on said first average level fluctuation value,

said first level fluctuation value indicates a fluctuation degree of electric field intensity of an electromagnetic wave received from said first wireless communication network,

5 said first average level fluctuation value is an average of a plurality of said first level fluctuation values, and

 said first wireless communication network is a network for a wireless LAN (Local Area Network),
10 and said second wireless communication network is a network for a PHS (personal Handyphone System).

28. An automatic changeover station for
communication networks comprising:

15 a first communication section which
communicates with another station through a first wireless communication network;

 a first watching section which measures a first level fluctuation value more than once, and
20 calculates a first average level fluctuation value, wherein said first level fluctuation value indicates a fluctuation degree of electric field intensity of an electromagnetic wave received from said first wireless communication network and said
25 first average level fluctuation value is an average of a plurality of said first level fluctuation

values;

a second communication section which has a function to communicate with said another station through a second wireless communication network;

5 and

a control section which controls said first communication section and said second communication section to change over from said first wireless communication network to said second wireless communication network based on said first average level fluctuation value.

29. The automatic changeover station according to claim 28, wherein said first wireless communication network is a network for a wireless LAN (Local Area Network), and said second wireless communication network is a network for a PHS (personal Handyphone System).

20 30. The automatic changeover station according to claim 28, wherein said control section compares said first average level fluctuation value with a first setting value, and

said control section controls said first communication section and said second communication section such that said first

communication section cuts said communication
with said another station through said first
wireless communication network, and said second
communication section starts communication with
5 said another station through said second wireless
communication network based on a first result of
said comparison.

31. The automatic changeover station according to
10 claim 30, wherein said second communication
section sends a first communication request signal
to said another station through said second
wireless communication network based on said first
result of said comparison,

15 said first communication request signal
indicates a request for a changeover from said
first wireless communication network to said
second wireless communication network,

said first communication section cuts a
20 communication through said first wireless
communication network, when said second station
receives a first communication answer signal from
said another station through said second wireless
communication network, wherein said first
25 communication answer signal indicates an answer
that said second station can communicate through

said second wireless communication network, and
said second communication section starts a
communication with said another station through
said second wireless communication network.

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32. The automatic changeover station according to
claim 28, wherein said first watching section
measures a second level fluctuation value more than
once, wherein said second level fluctuation value
10 indicates a fluctuation degree of electric field
intensity of an electromagnetic wave received from
said first wireless communication network during
communicating with said another station through
said second wireless communication network,

15 said first watching section calculates a
second average level fluctuation value by said
first station, wherein said second average level
fluctuation value is an average of a plurality of
said second level fluctuation values,

20 said control section controls said first
communication section such that said first
communication section sends a second
communication request signal to said another
station through said first wireless communication
25 network based on said second average level
fluctuation value, wherein said second

communication request signal indicates an request
for the changeover from said second wireless
communication network to said first wireless
communication network, and

5 said control section controls said second
communication section such that said second
communication section ends a communication
through said second wireless communication
network and starts a communication with said
10 another station through said first wireless
communication network, when first communication
section receives a second communication answer
signal from said another station through said first
wireless communication network, wherein said
15 second communication answer signal indicates an
answer that said another station can communicate
through said first wireless communication
network.